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Additional Notes on the Invertebrate Fauna of Clipperton Island

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Clipperton Island, the only coral atoll in the eastern Pacific, is inhabited by an unusual assemblage of invertebrate animals, comprising a mixture of forms, some with Panamic and some with Indo-Pacific affinities (see fig. 1). A paper by the present authors published in 1953 contains a discussion of Mollusca known to occur at this island.

Three members of the Scripps Institution of Oceanography Aca-pulco Trench Expedition recently visited Clipperton Island. Robert L. Fisher, James B. Jordan, and Stanley O'Neil were landed for a few hours from the "Spencer F. Baird" on December 12, 1954, while geo-physical exploration was proceeding in the area. Along with geological specimens they assembled a small collection of mollusks, crus-taceans, and coral. The collectors found no living marine invertebrates in the lagoon, and collected the invertebrates from the beach and along the outer margin of the atoll.

The purpose of the present paper is to record the identified species and subspecies among the invertebrates collected at Clipperton Island by members of this expedition, with remarks on their distribution, together with a few references concerning organisms from this island not included in our earlier paper (1953).

We wish to express our appreciation to Mr. Robert L. Fisher, scientific leader of the expedition, for permitting us to study the present collection. Acknowledgment is due Dr. John S. Garth of the Allan

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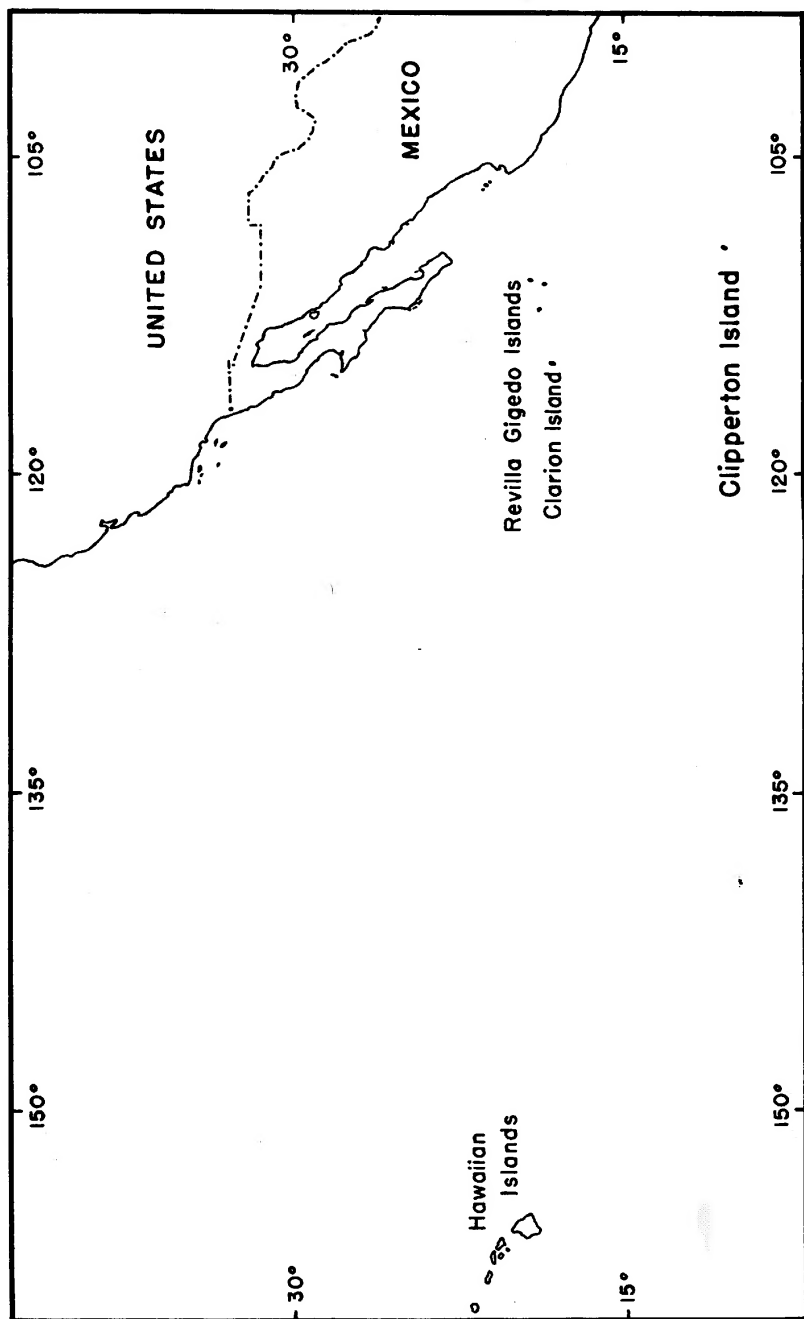


FIG. 1. Map showing the position of Clipperton Island in relation to the Western Hemisphere and the Hawaiian Islands (Miller cylindrical projection).

Hancock Foundation, University of Southern California, for the identification of the brachyuran Crustacea; to Miss Janet Haig, of the same institution, for the identification of the single anomuran crab in this collection; to Dr. Elisabeth Deichmann, Museum of Comparative Zoölogy of Harvard College, for identification of and information concerning the holothurian; to Dr. Albert H. Banner, University of Hawaii, for identification of and information concerning the species of shrimp; to Dr. J. W. Durham for identification of the corals; and to Miss Ailsa Clark, Curator of Recent Echinoderms, British Museum (Natural History), for the identification of the species of brittle star.

MOLLUSCA

The species of mollusks, except two with live animals, are represented by somewhat beach-worn shells.

CLASS PELECYPODA

Ctena clippertonensis Bartsch and Rehder

Two fragments, of a right and of a left valve.

CLASS GASTROPODA

Conus ebraeus Linnaeus

Thirteen specimens.

Conus ebraeus chaldaeus Röding

Syn.: *C. vermiculatus* Lamarck.

Twelve specimens.

Conus purpurascens regalitatis Sowerby

Three specimens.

Conus tiaratus Broderip

Six specimens.

Cypraea isabella mexicana Stearns

Two specimens.

Cypraea scurra Gmelin

One specimen.

Cypraea teres Gmelin

Two specimens.

Drupa ricinus Linnaeus

Seven specimens.

Hipponix fimbriatus Bartsch and Rehder

One specimen.

Malea ringens Swainson

One specimen.

Morula uva Röding

Four specimens (one live specimen).

Quoyula madreporarum Sowerby

One live specimen.

Thais planospira Lamarck

One specimen.

Two species in the preceding list, *Malea ringens* and *Quoyula madreporarum*, are here recorded from Clipperton Island for the first time. The former is known to occur in the Panamic fauna of the mainland from Point Abrejos, west coast of Baja California, to the Gulf of California, and south to Bayovar, Perú, as well as at María Madre Island, Tres Mariás Islands, Mexico, and the Galápagos Islands. The specimen is weathered but retains all its conchological characters, and it is undoubtedly referable to this species.

Quoyula madreporarum is widespread in the Indo-Pacific region and also occurs in the Panamic fauna along the mainland from Mexico to Panamá and at offshore islands at Clarion Island, Revilla Gigedo Islands, Tres Marias Islands, Mexico, and the Galápagos Islands.

Thais planospira, which we failed to cite in our earlier list, was recorded from Clipperton Island by Maxwell Smith (1939, p. 27). This species was originally described by Lamarck without information as to the locality from which it came, but reference was given to "*Purpura lineata*. Encyclop. pl. 397, f. 5, a, b." It is known to range from Pulmo Reef in the southern portion of the Gulf of California to northern Perú, as well as to the Revilla Gigedo Islands, Mexico, and the Galápagos Islands. Couturier (1907, p. 142) cited this species as occurring at the island of Marutea (Lord Hood Island) in the western Pacific, and later this record was cited by Dautzenberg and Bouge (1933, p. 234), but we have not seen specimens from other than west American localities. This species is the type of the subgenus *Tribulus* H. and A. Adams, as well as of *Planithais* Bayle.¹

¹ *Tropidothais* Cox, based on a species of Cretaceous age in Africa, is somewhat similar (1925, Ann. Transvaal Mus., vol. 11, pt. 3, p. 213. Type, *Tropidothais africana* Cox, p. 213, pl. 39, fig. 15a-c. "Incomanini, Portuguese East Africa. Upper Maestrichtian, late Cretaceous age.").

Of the 14 species in the present list, two are known to occur only at Clipperton Island, and five others are known from the eastern Pacific only on islands far offshore, the Revilla Gigedo Islands and Galápagos Islands. Seven are known to occur in the Panamic fauna of the west American mainland, and eight are known as members of the Indo-Pacific fauna.

ARTHROPODA

CLASS CRUSTACEA

The species represented in this collection and their known general distribution are as follows:

ORDER DECAPODA

SUBORDER REPTANTIA

Actaea dovii Stimpson

West American.

Actaea sulcata Stimpson

West American.

Geocarcinus planatus Stimpson

West American.

Geograpsus lividus Milne-Edwards

West American.

Micropanope xantusii Stimpson

West American.

Pachygrapsus minutus Milne-Edwards

Indo-Pacific.

Platypodia rotundata Stimpson

West American.

Trapezia cymodoce ferruginea Latreille

Indo-Pacific and west American.

Trapezia digitalis Latreille

Indo-Pacific and west American.

Petrolisthes marginatus Stimpson

West American.

Of the 10 species of crabs in this collection, only the two species of *Trapezia*, members of the *Pocillopora* coral colony, are here recorded from Clipperton Island for the first time. Three species in the present assemblage are known to occur in the Indo-Pacific region, but only one of these, *Pachygrapsus minutus* Milne-Edwards, has not previously been recorded as occurring in west American waters east of Clipperton Island. Dr. Garth¹ mentioned that "the *Thalamita* species obtained by Schmitt and the *Pachygrapsus minutus* obtained by the Scripps party as well are apparently the only two brachyurans that occur at Clipperton but not elsewhere in the eastern Pacific."

SUBORDER NATANTIA

Crangon ventrosa Milne-Edwards

Two specimens of this widely distributed shrimp were taken at Clipperton Island. According to Dr. A. H. Banner, this species has been recorded as occurring in heads of coral (*Pocillopora*) from the Red Sea to the Gulf of California at nearly every locality where collecting has been done on coral reefs.

ECHINODERMATA

CLASS OPHIUROIDEA

Ophiocomella clippertoni A. H. Clark

One specimen from Clipperton, which was sent to H. L. Clark by A. H. Clark for identification, was identified as *Ophiocomella parva* H. L. Clark, a species originally described from Torres Strait, Australia. A. H. Clark (1939, p. 7) doubted the identification and suggested that the species from Clipperton Island, if different, might take the name *Ophiocomella clippertoni*. This suggestion apparently was followed by Miss Ailsa Clark, who identified the present specimen at the British Museum (Natural History).

CLASS HOLOTHUROIDEA

Holothuria leucospilota Brandt

Three specimens.

This species, originally described from the Marshall Islands, is known to occur throughout most of the tropical Indo-Pacific waters from the Red Sea to Zanzibar and northern Australia, the Polynesian

¹ Written communication, January 24, 1955.

region to Hawaii, and at the Galápagos Islands in the eastern Pacific. Miss Deichmann called attention¹ to the fact that in the Galápagos Islands this species is usually represented by small individuals in contrast to the large forms here recorded from Clipperton Island. According to her, *Holothuria vagabunda* Selenka, 1867, and *H. fusco-rubra* Théel, 1886, both originally described from the Hawaiian Islands, are to be regarded as synonyms of the present species, which was originally described by Brandt in 1835 under the name of *Stichopus* (*Gymnochirotia*) *leucospilota*.

COELENTERATA

CLASS ANTHOZOA

Pocillopora meandrina nobilis Verrill

Pocillopora verrucosa Ellis and Solander

Pocillopora species

The two species of identified corals in this list are here recorded from Clipperton Island for the first time. They are known to be widespread in the Indo-Pacific region. The subspecies described by Verrill has been recorded by Wells (1954, p. 413) as ranging from Pulau-Pulau Banda, in the East Indies, northeastward to the Bonin and Hawaiian Islands. The other species, *Pocillopora verrucosa* Ellis and Solander, was recorded by the same author (Wells, 1954, p. 413) as ranging from the eastern Indian Ocean eastward to the Hawaiian Islands.

Apparently the coral reefs on Clipperton Island are teaming with many small organisms which find shelter there. Durham, who identified the species of corals, mentioned the presence in them of two small chitons, several small mollusks, some sponges, and coralline algae.

The collection from Clipperton Island mentioned in our earlier paper (1953) contained two species of solitary corals which were dredged at depths of 110–150 fathoms off the east slope of this island. J. W. Durham identified these as *Cyathoceras* (?) species, and *Paracyathus*, new species. The latter, according to Durham, bears affinities with *Paracyathus mauiensis* Vaughan from the Hawaiian Islands and with *P. pruinosis* Alcock from the East Indies, but the *Cyathoceras* reveals no close affinities with any known species. These genera are cosmopolitan in distribution, according to Durham and Barnard (1952, p. 13), who recorded both as occurring in the fauna of the eastern Pacific. These authors (1952, pp. 42, 43) cited the occurrence of two reef-building corals from Clipperton Island. One, *Pavona* (*Pavona*) *gigantea*

¹ Written communication, February 3, 1955.

Verrill, occurs in tropical west American waters from the Gulf of California to Panamá; the other, *Pavona* (*Pavona*) cf. *P. (P.) explanulata* Lamarck, an Indo-Pacific species, was recorded from Cocos Island in the eastern Pacific as well as at Clipperton Island.

Along with the present collection of invertebrates from Clipperton Island was a species of brown algae, *Pocockiella variegata* (Lamouroux) Papenfuss, identified for us by Dr. G. F. Papenfuss, Department of Botany, University of California, Berkeley. The type locality of this species is the Antilles. According to Papenfuss, this is a cosmopolitan species, widespread in Indo-Pacific waters, and it has been recorded from such widely separated places as the Hawaiian Islands, Bermuda, and the Canary Islands. This is one of 15 identified species of algae previously recorded from Clipperton Island by Taylor (1939).

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